

CLAIMS

1. A device for measuring fluid flowing in a duct, the device comprising:
 - a housing positionable in the fluid carrying duct, the housing defining a first flow passage for receiving a first portion of the fluid flowing in the duct;
 - an inlet connected to the housing and in fluid communication with the first flow passage;
 - an auxiliary flow passage defined by at least a first and second surface disposed in the housing, wherein the first surface has a first surface portion inclined relative to a second surface portion;
 - a first electrical element mounted in the first flow passage proximate to the intake; and
 - a second electrical element mounted in the auxiliary flow passage, and
 - wherein the first and second electrical elements are connected to at least one circuit for detecting a characteristic of the flowing fluid.
2. The device of claim 1 wherein the housing has a circuit portion for supporting an electrical circuit in communication with the first and second electrical elements.
3. The device of claim 2 wherein at least a portion of the circuit portion of the housing is disposed in the fluid carrying duct.

4. The device of claim 1 wherein the inlet is a nozzle having elliptically converging side walls.
5. The device of claim 1 wherein the first electrical element is a hot wire element.
6. The device of claim 1 wherein the second electrical element is a cold wire element.
7. The device of claim 1 wherein the first and second electrical elements are part of a bridge circuit.
8. The device of claim 1 wherein the first surface is a ceiling of the auxiliary flow passage that is inclined relative to the second surface.
9. The device of claim 1 further comprising a wall disposed in the auxiliary flow passage.
10. The device of claim 9 wherein the wall is attached to the second surface of the auxiliary flow passage.
11. The device of claim 9 wherein the wall is attached to the first surface of the auxiliary flow passage.

12. The device of claim 9 wherein the wall has a curved inboard surface.
13. The device of claim 9 wherein the wall has an end that substantially terminates at an end of the second electrical element.
14. The device of claim 9 wherein a portion of the inboard surface of the wall is substantially parallel with the second electrical element.
15. The device of claim 1 wherein the auxiliary flow passage further comprises a wedge-shaped rear wall.
16. A device for measuring fluid flowing in a duct, the device comprising:
 - a housing positionable in the fluid carrying duct, the housing defining a first flow passage for receiving a first portion of the fluid flowing in the duct;
 - a nozzle connected to the housing and in fluid communication with the first flow passage;
 - an second flow passage defined by a floor, a ceiling, a side wall and a rear wall disposed in the housing, wherein the floor has a first floor portion inclined relative to a second floor portion;
 - a first electrical element mounted in the first flow passage proximate to the nozzle; and
 - a second electrical element mounted in the second flow passage on at least one of the floor, the ceiling, the side wall and the rear wall, and

wherein the first and second electrical elements are connected to a circuit for detecting a characteristic of the flowing fluid.

17. The device of claim 16 wherein the housing has a circuit portion for supporting an electrical circuit in communication with the first and second electrical elements.

18. The device of claim 17 wherein at least a portion of the circuit portion of the housing is disposed in the fluid carrying duct.

19. The device of claim 16 wherein the nozzle includes elliptically converging side walls.

20. The device of claim 16 wherein the first electrical element is a hot wire element.

21. The device of claim 16 wherein the second electrical element is a cold wire element.

22. The device of claim 16 wherein the first and second electrical elements are part of a bridge circuit.

23. The device of claim 16 wherein the ceiling of the second flow passage is inclined relative to the floor.

24. The device of claim 16 wherein the side wall is attached to the floor of the second flow passage.

25. The device of claim 16 wherein the side wall has a curved inboard surface.

26. The device of claim 16 wherein the side wall has an end that terminates at an end of the second electrical element.

27. The device of claim 16 wherein the side wall is substantially parallel with the second electrical element.

28. The device of claim 16 wherein the rear wall of the second flow passage further comprises a wedge-shaped rear wall.

29. The device of claim 16 further comprising an air outlet defined by the ceiling, the floor, the rear wall and an end of the side wall of the second flow passage.